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ABSTRACT

To compare disciplinary techniques within families spanning three generations, 24 maternal grandmothers and 24 mothers independently selected rewarding and punishing consequences for their children's correct and incorrect responses on an age-appropriate learning task. The children's behaviors were experimentally controlled so that performances always appeared to worsen. As children's performance ostensibly declined from 80 to 50 percent "success," mothers and grandmothers increased both rewarding and punitive intensities. When success subequently decreased to 20 percent, mothers continued increasing rewards and punishments, but grandmothers' behaviors leveled off. Results extend earlier findings with mothers and their sons to mother/daughter and grandmother/grandchild disciplinary interactions. Overall, grandmothers' and mothers' discipline was more similar than different; however, despite the preponderance of similarities, differences that were found tended to favor the stereotype that grandmothers are more giving, less punitive, and more forgiving than are mothers. The intensities of both reward and punishment by grandmothers were related to their levels of involvement with their grandchildren. (Author/RH)

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Grandmothers' and Mothers' Rewarding and Punishing of Their Children

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Author Notes

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Abstract

To compare disciplinary techniques within families spanning three generations, 24 maternal grandmothers and 24 mothers independently selected rewarding and punishing consequences for their childrens' correct and incorrect responses. However, the childrens' behaviors were experimentally controlled so that performances always appeared to worsen. As responding declined from 80% to 50% successes, mothers and grandmothers increased both reward and punitive intensities. When successes subsequently decreased to 20%, mothers continued increasing rewards and punishments, but grandmothers instead leveled off. Results extend earlier findings with mothers and their sons to mother-daughter and grandmother-grandchild disciplinary interactions. Overall, grandmothers' and mothers' disciplining was more similar than different; however, despite the preponderance of similarities, the differences that were found tended to favor the stereotype that grandmothers are more giving, less punitive, and more forgiving than are mothers. The intensities of both reward and punishment by the grandmothers were related to their level of involvement with their grandchildren.

Grandmothers' and Mothers' Rewarding and Punishing of Their Children

Popular portrayals of grandmothers often depict them as loving, attentive, and giving, yet also indulgent, permissive, and meddlesome (Church, 1973; Fischer, 1978; U.S. Government Report, 1970). Grandmothers are often seen as "spoilers" of their grandchildren, whereas mothers are more frequently considered the disciplinarians. Some empirical support for the notion of grandmothers being permissive and indulgent has been obtained from questionnaires given to grandmothers (Robertson, 1977) and grandchildren (Kahana & Kahana, 1970). On the other hand, mothers' and maternal grandmothers' disciplinary styles may not be as divergent as commonly thought. The grandmother has been found to serve as a role model and resource person who provides the mother with emotional support, assistance, and information for raising the grandchild (Cohler & Grunebaum, 1981; Cohler, Grunebaum, Weiss, & Moran, 1971; Robertson, 1977).

There appear to be various styles of grandparenthood (Mass & Kuypers, 1975; Neugarten & Weinstein, 1964) which involve diverse roles (Robertson, 1977), varying degrees of interaction with the grandchildren (Hartshorn & Manaster, 1982; Kornhaber & Woodward, 1981), and different levels of satisfaction (Weinstein & Neugarten, 1964; Robertson, 1977). Nevertheless, most

grandparents report enjoyment from their role and visit with their grandchildren regularly (Hartshorn & Manaster, 1982; Robertson, 1977). Likewise, grandchildren generally value their relationships with their grandparents, especially the maternal grandmother with whom they most frequently have contact (Hartshorn & Manaster, 1982; Kahana & Kahana, 1970). Indeed, babysitting, usually at the request of parents or grandchildren, has become a common grandmothering duty (Robertson, 1977); moreover, when mothers are ill or working, one of the most likely surrogates to provide child care is the maternal grandmother (Cohler et al., 1971; Smith, 1980).

Responsibility for grandchildren sometimes involves making disciplinary decisions. Robertson (1977) reported that 79% of her sample were willing to use discipline with their grandchildren. However, little is known about factors that might influence grandmothers' disciplining. One of the few potentially relevant experimental studies involved elderly women who participated in a foster-grandparenting program with retarded children (Hoyer & Cone, 1974). Information about the children's performance on a coordination task was arbitrarily manipulated so that some children appeared more successful than others. Differences in performance, however, had no significant effects on the frequencies of interaction, praise, criticism, commands, or lack of responding by the women. Because of the

unusual characteristics of the children and their relationships with the women, it is unclear whether Hoyer and Cone's (1974) results are applicable to grandmothers interacting with their own grandchildren.

Many theoretical articles have addressed the discipline that parents administer, particularly the relationship between punishment and child abuse (e.g., Knutson, 1978; Parke, 1982; Parke & Collmer, 1975; Vasta, 1982). Among the variety of factors empirically shown to affect the type, frequency, or intensity of parental punishment are the children's degree of compliance (Minton, Kagan, & Levine, 1971; Schaffer & Crook, 1980), frequency and pattern of errors (Mulhern & Passman, 1979), changes in the adequacy of their performance (Kagan & Ender, 1975; Passman & Blackwelder, 1981), immediate reactions to the discipline they receive (Parke, 1977; Reid, Patterson, & Loeber, 1981), sex of the children and parents (Mulhern & Passman, 1981), situational stress on the parents (Passman & Mulhern, 1977), and the type of misdemeanor (Grusec & Kuczynski, 1980). Although discipline at times has been characterized as erratic and irrational (Lytton, 1979; Parke, 1977), increases in the frequency and seriousness of misbehavior generally produce accelerations in the number and severity of punishments (Grusec & Kuczynski, 1980; Vasta & Copitch, 1981). In research examining discipline as a combination of techniques designed to

alter children's behavior, some of the factors that influence mothers' punishment were found (perhaps counterintuitively) to influence their rewarding similarly: When mothers' attempts to teach their sons a task resulted in apparent deteriorations in the boys' performances, both rewarding and punishing intensified (Passman & Blackwelder, 1981). Whether other aspects of filial behavior (e.g., very gradual or abrupt declines in performance) would have moderating or exacerbating influences on disciplining requires additional research.

Social-interactional theorists have proposed two mechanisms to account for the onset, maintenance, intensity, and cessation of punishment by parents who abuse (Knutson, 1978; Parke & Collmer, 1975; Passman & Mulhern, 1977; Vasta, 1982). In the antecedent component, the aversive properties of children's misdeeds combine with other situational stressors to provoke punitiveness. Arousal and frustration are inferred mediators (Vasta & Copitch, 1981). The consequences of the punitive act (e.g., improvements in filial behavior) then function as reinforcers for that disciplinary response. This "dual-component" approach, which has been employed to integrate the research on punishment, aggression, and child abuse (Vasta, 1982), has also been useful in analyzing parental disciplinary interventions that do not involve abuse (e.g., Mulhern & Passman, 1979, 1981). However, the model has been more

successful in explaining the mechanisms of punishment than reward (Passman & Blackwelder, 1981). Since maternal grandmothers are a common source of surrogate child care (Cohler et al., 1971; Robertson, 1977; Smith, 1980) it is of both theoretical and practical importance to examine the extent to which this model pertains to ordinary grandparent-grandchild disciplinary interactions.

Within a standard teaching situation in which variability in different children's responding is experimentally controlled (cf. Passman & Blackwelder, 1981), the common stereotype of grandmothers maintains that they will reward more and punish less than mothers, regardless of the quality of the children's performances. If the children's behaviors progressively worsen either gradually or abruptly, grandmothers should continue to be indulgent, whereas mothers should increase discipline accordingly. On the other hand, if the grandmothers serve as teachers and role models for the mothers, few differences in their disciplinary styles should be evident.

Method

Subjects

The participants were members of 24 families spanning three generations: maternal grandmothers (M age = 58.3 years, range = 48-69 years) and mothers (M age = 31.2 years, range = 25-44 years) with their 12 sons and 12 daughters (M age = 5.9 years,

range 4-8 years). Participants were recruited through publicly displayed brochures and newspaper advertisements. Two families were black, and 22 were white. Family income levels ranged over all categories ($3,000 to over $50,000 annually). Adults' ages, income levels, and children's ages did not differentiate the experimental conditions to which the families were assigned.

Settings

Two adjoining rooms shared a one-way mirror (1.22 x 1.83m). In the adults' room (3.05 x 3.66 m), the one-way mirror was covered by drapes, which were kept closed except while the adults were to observe their children. To keep the room illumination at a constantly dim level, the windows were covered by opaque drapes. The room also contained two desks and chairs facing the mirror. Between the desks was a screen that visually isolated the adults sitting in the chairs. On each desk was 21.6 x 48.4 cm black retangular console (adapted from Mulhern & Passman, 1979, 1981; Passman & Blackwelder, 1981) with a row of 10 pushbuttons labeled 0 through 9. A green light labeled "Success" was above the buttons on the right, and a red light labeled "Error" was on the left.

The child's room (7.32 x 9.14 m) contained two chairs separated by a table. The chair for a female teacher directly faced the mirror and a child's chair. A black rectangular box (12.7 x 15.3 x 30.5 cm) with 10 equally spaced slots was placed

in the middle of the table. Nearby were red, green, and yellow plastic tokens that the child could deposit into the box. To one side was the teacher's control box (12.7 x 12.7 x 12.7 cm), which contained an amber light for pacing trials and a rotary switch for signalling childrens' successes and errors to the adults' room. At all times, the child's and teacher's behaviors were clearly observable through the mirror.

Procedure

Each family remained in the child's room until the child seemed acclimated to the female teacher and the surroundings. The mother and grandmother were then taken to the adults' room by a male escort and were seated at the screened desks. The desk assignments were randomly predetermined to avoid any potential bias due to position. To ensure that the women would respond independently, they were specifically requested to refrain from communicating with each other during the study. They were then given written instructions and read along as the procedures were verbally described by the escort.

The mothers and grandmothers were told that their children would be working on an age-appropriate learning task, which children generally found absorbing and challenging. Their role was to help their child (or grandchild) perform maximally by individually advising the teacher what amount of reward or punishment the child should receive for successes and errors.

Because the study was concerned specifically with observing parents' and grandparents' customary disciplinary procedures, it was emphasized that they should react in ways typically most effective with their child.

During this time, the teacher was providing the child with pretraining for the token dropping task. Drapes over the mirror were then opened so that the mother and grandmother could see the child and the teacher seated at the table. The child, who was facing the mirror, selected tokens and placed them into slots in the token box. After each selection, the teacher ostensibly signalled whether the child's response was correct (a green light on the women's consoles) or incorrect (a red light). The amber light on the teacher's control box (for pacing 30-second intertrial intervals) was then illuminated and remained lit until both the mother and grandmother responded. After 70 such trials, the drapes over the mirror were closed, and the child and teacher played until the family was ready to be reunited.

Mothers and grandmothers could reward by pressing a numbered button on their console to add 1-9 candies to a supply previously given to the child. After an error, 1-9 candies could be taken away. The lights (indicating a success or an error) remained illuminated until a disciplinary action was selected by both women. The option to ignore the child's

performance (to proceed to the next trial without providing disciplinary feedback to the child) was always available by pressing the zero button.

Despite the elaborate scenario described to the mother and grandmother, the children's performances were not actually relayed to them. Rather, every trial for each child was preprogrammed so that performance appeared to decline from 80% to 20% successes, either gradually (80%, 70%, 60%, 50%, 40%, 30%, 20%) or abruptly (80%, 80%, 50%, 50%, 50%, 20%, 20%) over seven blocks of 10 trials each. Families were assigned so that equal numbers of boys and girls were exposed to the gradual and abrupt schedules.

Questionnaires were administered to the mothers and grandmothers before and after the interactive teaching procedures. The first questionnaire obtained demographic information, ratings of children's customary responsiveness to parental and grandparental discipline in the home, and ratings of their responsiveness specifically to reward and to punishment. Mothers and grandmothers also rated their expectations regarding the quality of their own child's performance (relative to other children's) on age-appropriate learning tasks. Additionally, grandmothers related the number of hours per week (over the past six months) that they had primary responsibilities in caring for their grandchild. They

also rated the extent to which they felt personal responsibility for disciplining, teaching and socializing, and fulfilling the emotional needs of their grandchild. Furthermore, they rated the amount of personal authority they felt they had over their grandchild and the extent to which they had influence in decisions about raising the child. The post-test questionnaire assessed the mothers' and grandmothers' perceptions of the adequacy of their child's performance during the session, how much the performance differed from their expectations, and whether it was typical of the child's customary performance in similar circumstances at home. All ratings used nine point scales (1 = very poor, 9 = very good). In addition, the women were asked to describe whether there had been anything unusual about their child's behavior during the session.

All women stated that they believed they had monitored the actual successes and errors of their own child. Furthermore, on a nine-point scale (1 = very typical, 9 = very atypical), they rated their child's overall behavior in the test situation as typical ($\underline{M}$ = 3.15) of that observed in their own home under similar conditions. When specifically asked whether anything seemed unusual about the child's behavior, the comments were consistent with the conviction that they had been observing their own child. Behaviors deviating from expectation were nevertheless attributed to the child: Two women suggested that

their child seemed more emotionally expressive than usual; one cited restlessness, and another fatigue. Otherwise, 44 of the 48 mothers and grandmothers replied that there had been nothing unusual.

The method and its rationale were then thoroughly discussed. Mothers and grandmothers were positive and approving about the procedures. Moreover, to test the extent of their acceptance, they were requested to help in the recruiting of future participants by providing names of friends and allowing their own names to be used. All subjects agreed, but these names were not used.

Results

The data for rewarding, punishing, and ignoring of errors were each evaluated by separate 2 (family generation: mother or maternal grandmother) x 2 (sex of child) x 2 (child's apparent rate of change: gradual or abrupt) x 3 (quality of performance: 80%, 50%, or 20% successes) analyses of variance. To enable comparisons between the effects of gradual and abrupt declines in performance, only those three blocks of trials in which all participants received identical rates of successes and errors were evaluated (i.e., trials 1-10, 31-40, and 61-70, wherein both the gradual and abrupt groups experienced 80%, 50%, and 20% successes). Quality of performance was a repeated-measures factor.

For mean punishment (number of candies removed after errors), the interaction between family generation and quality of the child's performance was significant, $F(1,80) = 7.77$, $p < .01$, as was the main effect for quality of performance, $F(2,80) = 29.60$, $p < .01$. Table 1 presents the relationship between

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Insert Table 1 about here

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mothers' and grandmothers' mean punitive intensities and the deline in their childrens' apparent performances. According to pairwise comparisons (Neuman-Keuls test, $ps < .05$), as the children's successes appeared to decrease from 80% to 50% and then from 50% to 20%, the mothers' punishing consistently increased. Similarly at first, grandmothers' punishing rose when performance declined from 80% to 50%; however, contrary to the mothers' pattern of punishing, the decrease from 50% to 20% did not produce a further change in grandmothers' punishing. In addition, when the children initially appeared to be performing well at 80% and even 50% successes, mothers and grandmothers did not differ in their punitive intensities. On the other hand, when the level of childrens' performance was poorest at only 20% successes, mothers punished reliably more intensely than did grandmothers.

For rewarding, there was a significant interaction between the child's sex and the quality of performance, $F(1,80) = 4.49$,

$p < .05$, and a marginal one between family generation and quality of performance, $F(1,80) = 3.00$, $p < .06$. The main effect for the quality of the child's performance was also significant, $F(1,80) = 30.74$, $p < .001$. According to Neuman-Keuls paired comparisons ($ps < .05$), the initial decline from 80% to 50% successes resulted in significant increases in rewarding by both mothers and grandmothers (Table 1). With the further drop to 20%, however, only the mothers continued to give greater rewards; grandmothers' rewarding did not change from 50% to 20%. When the children seemed most successful (i.e., at 80%), grandmothers rewarded reliably more than did mothers; but thereafter, when performances deteriorated to 50% and later to 20% successes, grandmothers' and mothers' rewarding did not differ. Comparisons within the Sex x Quality of Performance interaction showed that both boys and girls received progressively more rewards as their performance declined from 80% to 50% to 20% (except that the increase in reward from 50% to 20% was not significant for girls). Initially, when both performed 80% successfully, girls were rewarded more than boys. Yet, when performance was worst (20%), boys were given more rewards than were girls.

As shown in Table 1, mothers' overall rewarding was about twice as intense as their punishing, while grandmothers gave about three times as many candies as they took away. Like 23 of

the 24 mothers, 23 grandmothers rewarded more than they punished. The mothers and grandmothers were also generally consistent in their disciplinary administrations. That is, women who initially tended to use intense levels of discipline continued to do so thereafter: Intensities of punishment administered at 80% successes correlated significantly with punishment given at 50%, $r(46) = .77$, $p < .01$, and punishment at 50% was highly related to punishment at 20%, $r(46) = .73$, $p < .01$. Similarly, rewarding at 80% successes was associated with rewarding at 50%, $r(46) = .54$, $p < .01$, and rewarding at 50% with rewarding at 20%, $r(46) = .58$, $p < .01$. Moreover, intensities of rewarding and of punishing were modestly but significantly related at each performance level: at 80%, $r(46) = .33$, $p < .05$; at 50%, $r(46) = .33$, $p < .05$; at 20%, $r(46) = .28$, $p < .05$. Thus, the more grandmothers and mothers punished, the more they rewarded. Furthermore, those women whose punishments increased more over the session also increased rewards more, $r(46) = .46$, $p < .01$.

The option of disregarding (neither rewarding nor punishing and thus failing to provide feedback) was available by pressing zero after any response by the child. Yet, successes were almost always followed by reward; only 4.0% of the possible opportunities were ignored. On the other hand, errors were far more frequently (25.4%) disregarded. The four-way ANOVA for the

percentage of errors that were ignored revealed a significant effect for child's performance, $F(2,80) = 14.86$, $p < .001$. When children performed well at 80% successes, mothers and grandmothers disregarded errors (40.6%) more often (Neuman-Keuls, $ps < .05$) than when performance declined to 50% and to 20% successes (15.8% and 19.7% ignored).

Information from the questionnaire was then compared to the women's administrations of discipline during the session. The amount of reward they gave was reliably associated with ratings of their children's customary responsiveness to rewards when at home $r(46) = .38$, $p < .01$; that is, the more the children were perceived as influenceable by rewards, the more reward they received. Rewarding was also associated with the mothers' and grandmothers' descriptions of their children's performances: Those women who considered their children to be performing more poorly gave greater increases in reward as the performances declined from 80% to 20% successes, $r(46) = -.29$, $p < .05$. However, the women gave greater overall amounts of reward to the children perceived as performing better, $r(46) = .29$, $p < .05$. Like reward, the intensity of punishment reflected the women's attitudes about the children. The amount of punishing was related to mothers' and grandmothers' prior expectations about the children's performances, $r(46) = .42$, $p < .01$, as well as to their ratings of the extent to which the children's performance

was typical of their home behavior, $r(46) = -.46$, $p < .01$. Thus, the more the child was expected to do well and the more the child's behavior during the test situation deviated from that expected under similar conditions at home, the more the child was punished for errors. Moreover, changes in punishment over the session were reliably associated with ratings of the children's general responsiveness to home discipline, $r(46) = -.45$, $p < .01$, and more specifically with their responsiveness to punishment given at home, $r(46) = -.32$, $p < .05$: Children considered to be less responsive to discipline in general as well as children particularly unresponsive to punishment received greater increases in punitive intensities as their successes progressively deteriorated from 80% to 20%.

The grandmothers' disciplining during the session was highly related to their reported involvement with the grandchildren. The overall amount of punishment administered by the grandmothers was significantly associated with their estimates of the number of hours per week they served as primary caretakers for the grandchildren, $r(22) = .55$, $p < .01$, their feelings of personal authority, $r(22) = .46$, $p < .05$, and influence in decisions about raising the children, $r(22) = .60$, $p < .01$, their responsibility for teaching and socializing, $r(22) = .40$, $p < .05$, disciplining, $r(22) = .55$, $p < .01$, and fulfilling the emotional needs of their grandchildren, $r(22) =$

.47, $p < .05$. Thus, the more the grandmothers provided child care, had authority and influence in child-rearing decisions and responsibility for teaching, socializing, disciplining, and emotionally supporting their grandchildren, the more intensely they punished. Grandmothers who rewarded more felt greater responsibility for teaching and socializing, $r(22) = .54$, $p < .01$, and for meeting the emotional needs of their grandchildren, $r(22) = .45$, $p < .05$. In particular, these feelings of responsibility and authority were related to the amount of time they took care of the grandchildren: More caretaking was reliably associated with greater feelings of authority, $r(22) = .71$, $p < .01$, and influence in decisions, $r(22) = .75$, $p < .01$, responsibility for teaching and socializing, $r(22) = .70$, $p < .01$, and disciplining $r(22) = .51$, $p < .01$.

Discussion

Progressive changes in the successfulness of childrens' apparent performances exerted potent influences on both grandmothers' and mothers' disciplinary interventions. In their efforts to help their children do well, the women generally responded to the declines in their childrens' performances by increasing the frequencies and intensities of both positive and negative discipline that they administered. As the boys and girls appeared to commit increasingly more errors, grandmothers and mothers each gave larger amounts of reward and punishment

while they ignored their childrens' errors and successes less often. Escalations in childrens' misbehaviors thus augmented not only the severity of punishment (Grusec & Kuczynski, 1980; Kagan & Ender, 1975; Minton et al., 1971; Schaffer & Crook, 1980) but also the magnitude of reward. These results are highly consistent with those reported by Passman and Blackwelder (1981) for mothers with their sons; in addition, they extend those findings to apply to mothers with their daughters and to maternal grandmothers with their grandsons and granddaughters.

Contrary to popular notions about benevolent, "spoiling" grandmothers whose disciplinary styles conflict with the mothers' (Church, 1973; Fischer, 1978; U.S. Government Report, 1970), little support was found for the indulgent-grandmother stereotype. Discipline from the groups of grandmothers and mothers tended to be more similar than different. Such results are consistent with reports that maternal grandmothers act as role models and advisors (Cohler & Grunebaum, 1981; Cohler et al., 1971): Mothers may have obtained information from their own mothers over time and then disciplined their children somewhat as they themselves had been raised. Both grandmothers and mothers were observed to be able and committed disciplinarians who used contingent reward and punishment in their attempts to improve their children's performance. In this regard, the grandmothers differed from the "foster grandmothers"

(Hoyer & Cone, 1974) whose disciplinary interactions did not vary in accord with the differences in performance by their retarded adoptees. The grandmothers, like the mothers of the present study and in previous research (Kagan & Ender, 1975; Passman & Blackwelder, 1981), were also found to be strongly biased toward their children's positive behaviors: The magnitudes of reward given for successes were more than twice as great as those subtracted as punishment for errors. For 46 of the 48 participants, overall reward was greater than punishment. In addition, grandmothers and mothers rarely overlooked opportunities to reward successes, whereas errors were more commonly ignored.

Unlike the interpretation that maternal discipline is erratic and noncontingent (Lytton, 1979; Parke, 1977), both the mothers' and grandmothers' discipline was highly consistent. Despite the decline in the proportions of childrens' successes, the individual women generally remained stable in their choices of disciplinary intensities. (Both punishments and rewards administered at 80% successes correlated highly with those given at 50% and at 20%.) As found previously with mothers (Passman & Blackwelder, 1981), grandmothers also demonstrated consistency across the two modes of discipline. As punishment intensified, reward increased correspondingly: Correlations of reward and punishment were .33 at 80% successes, .33 at 50%, and .28 at 20%.

Consistency was also evidenced in the grandmothers' and mothers' ratings of their children's behavior at home and performance during the teaching situation (Mulhern & Passman, 1981; Passman & Blackwelder, 1981). Many of these ratings were modestly but significantly associated with the discipline that the women administrated. The women gave greater overall amounts of rewards when they perceived their children as being responsive to rewarding at home, and they increased their rewarding over the session when they evaluated the children as performing poorly. More punishment was also delivered when the children's behavior during the session was considered to be atypical relative to their general behavior at home and when they were seen as performing unsuccessfully relative to prior expectations for them. Children considered to be unresponsive to discipline at home (and, in particular, those thought to be unresponsive to punishment) received greater increases in punishment (cf. Parke, 1977; Reid et al., 1981). These relationships support arguments that both the antecedent and the immediate evaluations of children combine to influence the type and severity of discipline they receive (Grusec & Kuczynski, 1980; Parke & Collmer, 1975; Schaffer & Crook, 1980; Vasta, 1982).

Unlike earlier studies using related procedures (e.g., Mulhern & Passman, 1979, 1981; Passman & Blackwelder, 1981;

Vasta & Copitch, 1981), the mothers and grandmothers were able to observe their children's performance directly (while they received experimentally controlled evaluations of it). Nevertheless, as also found in the previous studies with mothers, discipline administered in the laboratory was consistently related to the women's reports of typical behavior and discipline at home. Post-session questioning further revealed that every women believed she was actually monitoring her own child's behaviors and that she was responding as she ordinarily would at home. These findings, together with the stability noted in both rewarding and punishing across the session, demonstrate the ecological validity of the experimental technique. Furthermore, the lack of significant effects due to the abrupt versus gradual declines in performance indicates that the findings are robust; indeed, the abrupt and gradual procedures used in this study may be considered to be internal replications of each other.

Both rewarding and punishing increased in accord with the relative frequency of errors. Based on previous conceptualizations relating to child abuse (Knutson, 1978; Parke, 1977; Passman & Mulhern, 1977), Passman and Blackwelder (1981) reasoned that such decrements in the children's responding induced stress that, in turn, intensified the punitiveness. Escalations in rewarding were interpreted as

attempts by the women to compensate for their additional punitiveness as the children's responding faltered. Moreover, the successes may have acquired enhanced value as they became rarer over the session, and thus they merited increased rewarding. However, the consistent relationship between intensities of reward and punishment allows another interpretation--that a single variable can influence both modes of discipline. If the women's goal in disciplining was to help the children perform well (as they had been instructed), the experimentally induced deterioration by the children may have produced stress due to frustration (i.e., the impeding of goal attainment, Parke, 1977; Vasta, 1982; Vasta & Copitch, 1981). Children who frustrate adults' disciplinary interventions may receive more intense punishments than those who do not (Parke, 1982). In describing his dual-process interactional model of child abuse, Vasta (1982) likewise indicated that frustration or stress can act as "energizers" (i.e., motivators) that can elevate the probability and intensity of punishment. However, Vasta's argument can be extended to reward as well: Motivators such as frustration and stress have long been established as facilitators of responding in general (e.g., Hull, 1952), not just of negative behavior like aggression and punishment. The present results demonstrate that, even under ordinary conditions

of discipline that are far removed from child abuse, motiviational processes can affect reward as well as punishment.

Despite the preponderance of similarities in mothers' and grandmothers' disciplining, they differed in some respects, and these differences tended to favor the idealized stereotype of the indulgent and permissive grandmother. At the outset, when the children appeared to be performing well (and when the discipline was least influenced by the experimental manipulations and thus probably most reflective of characteristic grandmother-grandchild interactions), the grandmothers gave significantly larger amounts of reward than did mothers. Both then accelerated their rewarding and punishing as successes decreased from 80% to 50%; however, grandmothers stabilized at this level even when successes fell to 20%, whereas mothers continued to increase rewards and punishments in accord with their children's declining performance. Thus, mothers used a broader range of intensities for discipline than did grandmothers. As a result, toward the end of the session when the children were performing their worst, grandmothers were reliably less punitive than mothers. After the session was completed, when the net amounts of candies remaining for the children were tallied (i.e., total number given minus total subtracted), the children had 48% more candies from grandmothers than from mothers. Although not statistically

significant, grandmothers also consistently tended to ignore errors more than did mothers. In fact, three of the grandmothers (12.5%), but none of the mothers, chose not to punish their children's errors at all on any of the 35 opportunities to do so. These three grandmothers later indicated that they had decided to refrain from punishing because they do not punish ordinarily within their grandparent-grandchild relationship. These exceptions to the general trend of results indicate that grandmothers, when they do differ from mothers, tend to be more giving, less punitive, less intense, and more forgiving of errors.

The grandmothers varied in the amounts of authority and responsibility they perceived themselves assuming for their grandchildren (cf. Cohler & Grunebaum, 1981; Robertson, 1977), and these differences were significantly related to the intensities of the discipline they administered during the session. The more they felt they had personal authority over the children and assumed resonsibilities for teaching and socializing, fulfilling emotional needs, raising, and disciplining the children, the more intensely they punished. To a lesser extent, rewarding was similarly influenced. Notably, these indicants of responsibility were highly associated with the amount of time that the grandmothers reported caring for their children. It is likely that these factors are related to the differences found between the disciplining of the mothers

and grandmothers. Mothers generally have immediate authority and primary responsibilities for the long-term socialization of their children, whereas grandmothers usually have delegated authority and secondary responsibilities. Grandmothers therefore were probably less stressed and frustrated by the continued deterioration in the children's behavior. Consequently, the grandmothers used relatively restricted ranges of reward and punishment, and their discipline plateaued when the childrens' performance continued to decline from 50% to 20% successes. This reasoning is supported by the finding that grandmothers who more closely approximated the conventional maternal role by assuming greater levels of responsibility and authority disciplined more intensely than did less involved grandmothers.

Girls' and boys' performances were identical, yet the children's sex differentially affected their reward. Initially at 80% successes, boys obtained fewer rewards than did girls, but, when performance was poorest at 20%, boys received more. Punishment and the ignoring of errors, however, were not found to be influenced by sex. Sex differences in rewarding were unanticipated; nevertheless, others (e.g., Margolin & Patterson, 1975; Wahl, Johnson, Johansson, & Martin, 1974) have also reported that mothers punished sons similarly to daughters, particularly when the children performed extremely poorly (Mulhern & Passman, 1981).

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Table 1

Mean Reward (Candies Given), Punishment (Candies Taken), and Ignoring of Errors by Grandmothers and Mothers as Their Children's Successful Responding Declined

	Successes			
Discipline	80%	50%	20%	Mean
Punishment				
By mothers	.98	2.61	3.51	2.37
By grandmothers	1.25	2.30	2.02	1.86
Mean	1.11	2.45	2.76	2.11
Reward				
By mothers	3.99	5.26	6.58	5.28
By grandmothers	5.03	5.84	6.39	5.75
To boys	4.15	5.29	6.83	5.43
To girls	4.86	5.81	6.15	5.61
Mean	4.51	5.55	6.49	5.52
Ignoring Errors				
By mothers (%)	37.50	10.00	10.60	19.36
By grandmothers (%)	43.75	21.67	28.75	31.39
Mean (%)	40.63	15.83	19.67	25.37